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Alberta Naturalist

Rocky Mountain
Wood Tick
Female:
Dermacentor
Andersoni Stiles
Lethbridge,
April 14, 1981.

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COVER STORY: ROCKY MOUNTAIN WOOD TICK

by Hazel Ross
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It was to be a pleasant April day on the shortgrass prairie searching for the return of the beautiful Mountain Bluebird (*Sialia currucoides*). So busy were we looking upward that only when we returned to our vehicle did we notice about a dozen Rocky Mountain Wood Ticks (*Dermacentor andersoni*) crawling up my light blue-coloured jeans. My companion, wearing dark-coloured jeans, had no ticks on him. We wondered why the difference, and this sent me in search of an answer.

The Rocky Mountain Wood Tick can be found in Alberta in the Rocky Mountains and east to the Saskatchewan border and as far north as Grande Cache. It is found mainly on the dry bunch-grass prairie where climactic conditions are ideal and suitable hosts survive in sufficient numbers. Such areas are usually dry slopes with rocky outcroppings, the base of which provide a climate moist enough to support suitable vegetation for cover and food to feed the rodents that are necessary for the survival of the tick. Thus, the short-grass prairie of southern Alberta is ideal.

The tick is about the size of a shingle-nail head with six legs in the larvae and nymph stages and eight legs in the adult stage. It is wingless and the body is covered with a leathery elastic cuticle that allows it to enlarge considerably during feeding. Unlike its relatives of the spider and scorpion families, it lacks their hunting skills and has become a parasite feeding on the blood of its victims. The female is a rust brown colour with a grey shield on its back towards the head. The male is slightly greyer and has no shield.

Upon emerging from hibernation in March the adult tick attaches itself to a grass stem or shrub branch, hangs upside down and grips with its third pair of legs. The other legs are extended ready to grab a suitable host when passing. It can sit and wait for days or weeks if necessary. This is referred to as "questing" for food. The host at this stage is usually large, such as sheep, cattle, horses, humans, dogs, porcupines or deer. However, it can survive up to three years without a feed of blood by hibernating when the hot, dry weather comes until the following March.

How the tick finds its host is sketchy but experiments suggest carbon dioxide is emitted by the host and the tick's two sense-organs detect this and attach themselves to a passing host. These selections depend on odours perceived through minute olfactory pits and hairs on the tick. Some researchers think that infrared radiation is picked up on specialized hairs that are similar to micro-wave antennae.

When a suitable host is found the tick spends several hours searching for a protected area, usually around the head, to provide uninterrupted feeding. Once located, the tick uses its specially-equipped mouth parts to pierce the skin and anchor itself. To ensure a firm grip the tick seals itself to the host with a cement-like substance. It assures a steady flow of blood by injecting an anti-coagulant. The male moves about while feeding but the female remains in one place until it expands to the size of a small grape, increasing her weight a hundredfold. The male is attracted by this increase in size and mates with her. When mating and feeding have been completed the female drops to the ground and lays between 6,000 and 10,000 eggs.

When the eggs hatch the larvae must find a host for a feed of blood. They usually seek out small animals such as mice, ground squirrels or marmots. Once fed, the larvae change to the nymph stage and again a search for blood is the main concern of the tick. If it is fortunate in finding three hosts during one season its life cycle is completed. Otherwise the life cycle may take several years to complete.

The bite of a female Rocky Mountain Wood Tick can cause Rocky Mountain Spotted Fever, but it is a very rare occurrence in Alberta. British Columbia is less fortunate, having had livestock die of the disease. In 1971 on a ranch in the Nicola River area about 400 head of cattle suffered paralysis, a side effect of the fever, and 50 head died.

A few precautions should be taken when out camping or hiking. Always wear slacks with socks pulled over the bottom of the slacks, or tuck the pant leg into hiking boots. After an outing look for ticks in your hair, around the neck area and behind ears. Community grooming, monkey-style, is often a good idea as another person could readily spot any attached tick. They are always on the skin surface and never buried.

And so the mystery of why the wood tick was attracted to me and not my companion was solved. It was a blow to my ego to learn my personality or the colour of my blue jeans probably had nothing to do with it. More likely, the tick was only interested in the amount of carbon dioxide I emitted. But we don't let these nasty, small creatures keep us from enjoying nature. We take the necessary precautions and add the humour of Ogden Nash. He said:

"We risk at every jolly picnic
Spotted fever from a tick nick."

OVERHEARD. . .

"Most politicians would not risk their careers for the sake of conservation, because firstly they do not think it is important, and secondly they treat all conservationists with the disregard that they would display to an elderly spinster's ravings over her pet peke."

Submitted by Murray A. Tozer, from "Two in the Bush" by Gerald Durrell

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A BIRDER'S GUIDE TO JASPER NATIONAL PARK

by Kevin Van Tighem and Geoff Holroyd,
Canadian Wildlife Service
Box 1343, Banff, Alberta TOL 0C0

Produced for Parks Canada by Canadian Wildlife Service,
Edmonton, Alberta

The Rocky Mountains, with their long cold winters, cool summers and extensive coniferous forests do not support an abundance of birds. Nevertheless there is a variety of habitats available from valley bottoms to alpine that supports a reasonable variety of species. In addition, the mountains are located between the moist forests of British Columbia and the dry prairies, and many wanderers have been recorded in Jasper National Park. Thus, birding in Jasper can be exciting whether you are searching for a rare migrant along the Yellowhead Highway or hiking into more remote areas for Willow Ptarmigan or Golden-crowned Sparrows.

The following list includes some of the more outstanding areas, or the most accessible areas of suitable habitat for unusual species, in Jasper National Park. The best seasons for visiting the areas and the types of species present are also indicated. For ease of locating the areas, refer to Figure 1. Further information such as the "Checklist of Birds of Banff and Jasper" is available at the Information Centre in Jasper townsite.

1. Pocahontas Ponds

Location: On the north side of Highway 16, 8.8 km from the Jasper National Park east gateway. Parking is available at the service centre on the east side of the highway.

Habitat: Sedge-bordered wetlands with willow and white spruce shrubbery on the better-drained sites. These wetlands are flooded by the Athabasca River every spring and remain largely submerged until late June. By August there are extensive sedge flats and shallow ponds where there was standing water in spring.

Birding: Mid-April to late May - A variety of waterfowl including Canada Geese, Mallards, Green-winged, Blue-winged and Cinnamon Teal, and numerous shorebirds use these ponds as a spring migration stop and staging areas. June and early July - An abundance of small passerines nest in the shrubbery and sedge meadows. These include boreal species such as White-throated Sparrows, Ovenbirds and, occasionally, Magnolia Warblers, which is rare elsewhere in Jasper. LeConte's Sparrows can be heard singing with the more common Savannah Sparrows in the sedge meadows. Alder Flycatchers, Orange-crowned Warblers and Common Yellowthroats are common, and Osprey can be seen hunting over the ponds. Mid-July to late September - Again, during the autumn migration, these ponds become an important staging area for waterfowl and shorebirds. In early autumn up to ten or more Great Blue

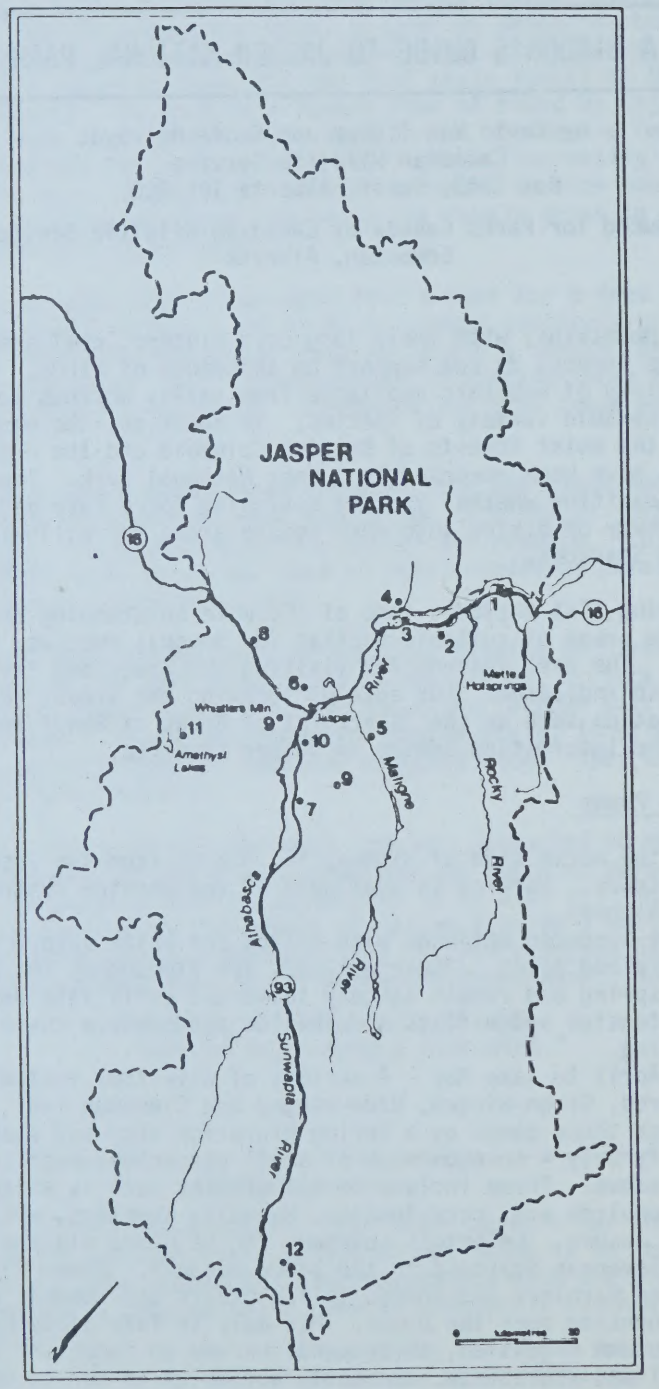

FIGURE 1. Jasper National Park, birding areas.

Herons may occasionally be seen.

2. Talbot Lake

Location: On the southeast side of Highway 16, from 18 to 24 km from the Jasper National Park east gateway (25 to 31 km from Jasper townsite). The lake is on the east side of the highway and there are several picnic pull-offs along its length. The most productive birding is at the north end of the lake.

Habitat: The lake is of moderate depth shallowing to a sedge bed complex at the north end. White Spruce bog forest adjoins the north end of the lake; the rest of the lake is surrounded by a mixture of grassland and spruce forest.

Birding: Mid-April to late May - Concentrations of migrant waterfowl gather on the lake, including such species as Canada Geese, Red-necked and Horned Grebes, Surf and White-winged Scoters, Hooded Mergansers, Oldsquaws, Barrow's and Common Goldeneyes, and Buffleheads. Bald Eagles are seen regularly during early spring. Mid-May to mid-July - Watch the north end of the lake for such park rarities as Long-billed Marsh Wrens and LeConte's Sparrows. Ospreys can be seen nesting across the lake from the Talbot Picnic Site and Canada Geese and Common Loons nest along the northern half of the lake. Mid-July to late September - Sometimes very large concentrations of migrant waterfowl gather on Talbot Lake. Surf and White-winged Scoters, Hooded Merganser and others can be seen during their autumn migration.

3. The Mushroom Patch

Location: On the northwest side of Highway 16, 28 km from the Jasper National Park east gateway (17 km from Jasper townsite). Parking is available at the Jacques Creek Trailhead parking lot.

Habitat: Tall willow shrubbery with a tangled understory of nettles and raspberry canes; adjoined by mature Balsam Poplar and White Spruce forest. The willows have a distinctive mushroom-shaped growth form which gives this area its name.

Birding: Late April and early May - Saw-what and Great Horned Owls can be heard calling at night, especially around moonrise. Ruffed Grouse can be heard drumming at dawn and dusk. Mid to late May - Migrant warblers including MacGillivray's, Orange-crowned and Tennessee Warblers, American Redstart, Red-eyed and Warbling Vireos, Clay-coloured and White-throated and Chipping Sparrows are readily observed in the dense shrubbery. June and early July - The Mushroom Patch supports an exceptional density of breeding passerines including MacGillivray's, Orange-crowned and Tennessee Warblers, American Redstart, Warbling Vireo, Clay-coloured and White-crowned Sparrows, as well as several pairs of Rufous Hummingbirds. Winter - High densities of small rodents make this a likely area for Northern Shrikes, Great Horned and Hawk Owls and, possibly, Rough-legged Hawks.

4. Celestine Fire Road

Location: The Celestine road joins Highway 16 on its west side 40 km from the Jasper National Park east gateway (9.5 km north of Jasper townsite). The

road parallels the Athabasca River on its west side for about 33 km to the Celestine Lakes parking lot. Travel is one-way on this road so check with the Jasper Information Centre for times when planning your trip.

Habitat: The road winds through Lodgepole Pine, White Spruce and Douglas Fir forests and for much of its length traverses dry grassy slopes and open forests overlooking Jasper Lake and the Athabasca River.

Birding: Late April and early May - Saw-whet and Pygmy Owls may be heard calling at moonrise, especially near the Snaring District Warden Station. Watch and listen for Blue Grouse and Townsend's Solitaires at the forest edges adjacent to the open slopes. June and early July - Park rarities such as Say's Phoebe, Lewis' Woodpecker and Rock Wren may be sighted occasionally on the open slopes, especially near Windy Point where the road makes a hair-raising left-hand turn around a rock outcropping.

5. Maligne Valley Road

Location: This road joins Highway 16 1.5 km north of Jasper townsite and runs 48 km east up the Maligne River Valley to Maligne Lake. Along its route it crosses Maligne Canyon and passes Medicine Lake.

Habitat: Most of the Maligne Valley is relatively unproductive Lodgepole Pine and spruce forest. Maligne Canyon is a deep shaded gorge abutted by pine forest and open grassy slopes. Medicine Lake is a large lake whose water level varies dramatically during the year, being lowest in early June and again in late summer.

Birding: April to early July - Raven nests may be observed in Maligne Canyon and Townsend's Solitaires nest on the open slopes above Maligne Canyon and Medicine Lake. Harlequin Ducks may be seen on Medicine Lake and the Maligne River, but are most conspicuous at the outlet of Maligne Lake. There are Boreal Owls along the lower end of Medicine Lake; listen for these at moonrise in April and early May. Winter Wrens and Varied Thrushes may be found in the deep spruce woods across the outlet from the lower end of Medicine Lake. Late June to early September - Black Swifts nest in Maligne Canyon, one of only three known breeding locations in the Alberta Rocky Mountains. The swifts are most readily seen from the viewpoint 1/2 km south of the canyon at dusk as they return to the colony. All year - Patches of open water remain on the Maligne Lake all winter long. Consequently, American Dippers can be seen at any time of the year by a diligent searcher.

6. Cottonwood Slough

Location: Adjacent to the Pyramid Lake road 2 km west of Jasper townsite. Cottonwood Slough is the first wetland on your left after leaving the townsite.

Habitat: A complex area of sedge-filled wetlands, beaver ponds, grassy slopes and pine and aspen forest.

Birding: March to early May - Checking the area at moonrise could produce calling Saw-whet, Boreal, Barred or Great Horned Owls. Late April to late May - Migrant and breeding waterfowl are fairly common, including species which are not frequently observed in Jasper. These include Pied-billed Grebes, Ring-necked Ducks and Soras. June and early July - Likely species include Ring-necked Ducks, Greater Yellowlegs, Northern Waterthrush, Orange-

crowned and Wilson's Warblers, Yellowthroat, Least Flycatcher, Rufous Hummingbird, Clay-coloured and Song Sparrows and Warbling Vireos. For a visitor who has limited time and wishes to see many species in an attractive area, Cottonwood Slough is recommended.

7. Athabasca River

Location: This river parallels Highway 16 from the east park gateway to Jasper townsite, and Highway 93 from the townsite south to Sunwapta Falls.
Habitat: The Athabasca is a typical fast-flowing glacial stream with numerous gravel bars and log jams. Most of its shoreline is Lodgepole Pine or White Spruce forest.
Birding: Early May to early June - The reach of the Athabasca River in the vicinity of Jasper townsite is a staging area for Harlequin Ducks; watch for small groups on the tips of gravel bars and small islands. Mid-October to mid-May - American Dippers can be seen all winter long wherever there is open water.

8. Miette River Valley

Location: Adjacent to Highway 16 from Jasper townsite to the Jasper National Park west gateway. There are two major areas: the mixed forest section from the bridge where Highway 16 crosses the Miette 1 km west of Jasper, downstream to the Athabasca River confluence; and the wetlands portion from Decoigne Warden Station (1 km east of the west gateway) downstream to Geikie (14 km east of the west gateway).
Habitat: A mosaic of sedge meadows, willow shrublands, oxbow ponds and White Spruce forest in the wetlands portion; farther downstream mixed forest of White Spruce, Balsam Poplar and tall willow species predominates the river bottom.
Birding: May to July - The wetland section supports an abundance of nesting waterfowl, particularly Canada Geese, at least three Osprey nests, Belted Kingfishers and a wide variety of small passerines. The mixed forest section is an ideal place for a dawn or evening canoe trip in late May or during June. Pileated Woodpeckers and Barred Owls nest here, Rufous Hummingbirds perform courtship flights along the banks, and the canoeist can hear the songs of Tennessee, Orange-crowned, Yellow, Yellow-rumped, Blackpoll and Wilson's Warblers, American Redstarts, Warbling Vireos, Purple Finches and numerous other species. Many park rarities, such as Northern Oriole and Goshawk, have been sighted in this area.

9. The Whistlers and Signal Mountain

Location: These two alpine areas are within easy reach of Jasper townsite. The Whistlers are reached by travelling 2 km south of the junction of Highways 16 and 93 on Highway 93 to the access road to the Whistler's Sky Tram. Check at the Jasper Information Centre for the Sky Tram hours of operation. Signal Mountain is reached by hiking 6 km up the road that begins at the Maligne Road 5.5 km from its junction with Highway 16.
Habitat: The Whistlers and Signal Mountain both have extensive areas of open alpine vegetation and rubble slopes. The Signal Mountain meadows are more

lush and there is a considerable expanse of open timberline forest.
Birding: Mid-June to late August - A half-day of hiking should produce a number of alpine specialties such as Water Pipits, Horned Larks, Gray-crowned Rosy Finches, Fox Sparrows and White-tailed Ptarmigan. Golden-crowned and Brewer's Sparrows and, occasionally, Willow Ptarmigan, may be found in timberline areas, and during late August there is a good possibility of seeing a Sharp-shinned Hawk, Marsh Hawk or Prairie Falcon. Townsend's Solitaires favour steep slopes at or below timberline.

10. Valley of Five Lakes

Location: The Five Lakes are 8 km southeast of Jasper townsite. There are trailheads at Old Fort Point and adjacent to Highway 93, 9 km south of the junction of Highways 16 and 93.
Habitat: The Valley of Five Lakes trail is an easy hike through Lodgepole Pine forest, willow stands, open grassy slopes and Douglas Fir forest. The Five Lakes are small, clear ponds enclosed by Lodgepole Pine/Douglas Fir forest.
Birding: Mid-May to mid-July - Warblers are common in the wetlands; these include MacGillivray's and Yellow Warblers, Northern Waterthrushes and Common Yellowthroats. The Douglas Fir stands are good places to watch and listen for Hammond's Flycatchers and Western Tanagers. Barrow's Goldeneyes and Common Loons can usually be seen on the Five Lakes, and Ruffed Grouse and Hermit Thrushes occur in the aspen forests along the trail.

11. Amethyst Lakes

Location: Accessible only by foot or horseback with an overnight camping trip or stay at an outfitter's lodge virtually essential. Enquire at the Jasper Information Centre for details.
Habitat: This is a moist and beautiful Uppper Subalpine valley with large lakes, extensive sedge and willow meadows flanked by open spruce/fir woodland and expanses of open alpine meadow-land.
Birding: Mid-June to August - This is one of the most likely areas in the park for finding Willow Ptarmigan. Other unique species occur here. Twice Gray-cheeked Thrushes have been found singing here during the breeding season. Golden Eagles nest in the area. Winter - Flocks of White-tailed and Willow Ptarmigan frequent the edges of the willow meadows during winter and are readily located by tracking.

12. Wilcox Pass

Location: An easy day hike that starts at Wilcox Creek Campground near the Columbia Icefields Centre, at the south end of the park.
Habitat: Alpine meadows, rubble slopes and open timberline forest.
Birding: Mid-June to August - White-tailed Ptarmigan, Horned Larks, Water Pipits, Brewer's Sparrows and Golden Eagles are seen regularly.

WINTER BIRDS OF JASPER NATIONAL PARK

During winter there are few birds in Jasper National Park. In the townsite Stellar's Jays, Evening Grosbeaks, Pine Grosbeaks and House Sparrows may

be seen around feeders; watch telephone wires for Pygmy Owls which occasionally appear at this season to prey on the House Sparrows.

Elsewhere in the park roving bands of Boreal, Black-capped and Mountain Chickadees, occasionally with a few Red-breasted Nuthatches and Golden-crowned Kinglets, may be met with almost anywhere. Willow and White-tailed Ptarmigan may be found by cross-country skiing along the open valley bottoms of Upper Subalpine streams (try Whistler's Creek near Marmot Ski Area, Portal Creek or the Maligne River upstream from Maligne Lake).

Occasionally a Rough-legged Hawk, Hawk Owl or Northern Shrike may spend the winter along the lower Athabasca Valley between the Mushroom Patch and the east gate.

There are, of course, many other places in Jasper National Park that will provide the birder with a rewarding experience. The lakes in the vicinity of Jasper Park Lodge, for instance, are excellent places to watch the spring and autumn waterfowl migrations. Small shorebirds frequent the sandy beaches of Jasper Lake during their August migration. Jasper townsite itself has a surprising variety of birdlife, including Rufous Hummingbirds, Purple Finches and Evening Grosbeaks.

Park Naturalist and Information staff can provide you with useful advice on areas or trails to visit, and they welcome any information you might be willing to share concerning your observations in the park. There is always more to know.

OVERHEARD. . .

"The seasons turn like a kaleidoscope here. The weather is a different thing every day. Each season brings a different sense of wonder, a different taste in the air and a fantasy of different colors to your eyes. A man cannot be of one mood when he lives in continuing changes in weather and wind, and the people here reflect those changes. Like no one else they can gain the most enjoyment out of simple things like rain and snow, which to any one else contain basic elements of pure misery.

Submitted by Murray A. Tozer, from "Slivers of Glass" by W.A. Pedersen

POSSIBLE KILLING OF MEADOW VOLE BY FEMALE COLUMBIAN GROUND SQUIRREL

by M. A. Harris
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In 1976 I was one of four people involved in a study of scent marking and social behaviour in Columbian Ground Squirrels (*Spermophilus columbianus*) (See Murie and Harris 1978). Our study area was beside the Sheep River Ranger Station, about 32 km west of Turner Valley, Alberta. Each of us had an observation area of approximately 1 ha within the main study area, and we live-trapped, ear-tagged and individually dye-marked all the squirrels who lived in those areas. As part of the study, each of us spent approximately 4 hours every morning scanning our area at regular intervals, noting the exact location of each squirrel and what it was doing at the time.

On the morning of 10 May I was sitting at my normal observation post, about 20 m southwest of a large boulder which I used as a landmark. At 9:20 a.m. one of the females resident on the area suddenly ran out from beside this boulder, carrying a vole in her mouth. She ran with it about 15 m to the northwest, to a burrow entrance beside a small dirt mound; then she stood on her hindlegs and pushed the vole more firmly into her mouth with her forepaws, dropped it on the mound and held it down with her forepaws while biting at it, and moved around it from side to side in a quick and jerky fashion. For the next 10 minutes she continued to worry at the vole while her actions gradually became less agitated, and she disappeared partway into the burrow entrance. My view at this point was partially obstructed by clumps of grass, but I did not want to move closer for fear of disturbing the squirrel and interferring with my regular scans of the area. Because she appeared to be making chewing or biting motions during this time, I assumed she was feeding on the vole. At 9:30 the squirrel sat up on the dirt mound and began a lengthy grooming session. She clawed a shallow depression in the dirt, rubbed one side and then the other into the dirt several times, pawed and licked her fur, and dragged her belly along the ground. Then she began to feed on the vegetation beside the burrow and continued on her way. At 11:00, having finished my observations, I investigated the spot where I had last seen the squirrel and vole. There, beside the burrow entrance, half-covered in dirt, was the entire body of a freshly-killed Meadow Vole (*Microtus pennsylvanicus*). It had a large open wound on its neck and its neck was broken. There were no signs that anything had been feeding on it.

I could not, of course, be certain that the vole had actually been killed by the ground squirrel, since it may already have been dead or dying at the time she picked it up. Nevertheless, when the squirrel first came into view her actions suggested that she was struggling with a live object, and the

body I investigated later was only recently dead. If she did kill the vole, as seems likely, one wonders why, given that she was not interested in it as food.

I suspect that the vole may have been killed because the squirrel discovered it in one of her nest burrows. This particular ground squirrel was a 2-year-old female who had bred for the first time on 3 May. Two days prior to these observations, on 8 May, I observed her carrying nesting material (dry grass) to a small burrow entrance 3 m east of the large boulder. She apparently did not use the burrow as a nest herself, since she continued to spend overnight in a different burrow system, but on that day she chased a yearling male ground squirrel from 5 m east of that boulder and on 19 and 21 May she chased a neighbouring female and a male from around 10 m northwest of the boulder, so she was evidently defending the area. Later she provisioned two other burrows with nest material, one 15 m northeast and one 25 m north of the large boulder; her young were eventually raised in the latter burrow. She continued to live and breed in the same area for the next four years. In 1977 and 1978 she again provisioned the burrow 3 m east of the large boulder with nest material, but never actually used it to bring up her young.

The incident I have described above may not have been isolated. On 14 May of the same year, I discovered the carcass of a vole lying beside the entrance to a burrow from which another female ground squirrel emerged in the morning. This vole had been dead for some time and was partially covered with loose dirt and squirrel droppings.

Female Columbian Ground Squirrels generally provision more than one burrow with nest material before giving birth, but then choose only one of these locations to raise their young. They also sometimes plug their nest burrows with dirt. Since in 1976 I was not yet aware of their habit of plugging nest burrows, I did not check to see whether the burrow had been plugged after it had been provisioned with nest material. In 1978, however, after this female had spent a good part of the morning carrying nesting material into the same burrow just east of the large boulder, I observed her apparently in the act of plugging the burrow entrance. She pushed and patted the earth around the burrow with her forepaws and finished with scraping, clawing movements. When I later investigated the spot, the former hold had disappeared and its location was indistinguishable from the surrounding area.

McLean (1978) suggested that the plugging of nest burrows by female Columbian Ground Squirrels may be related to protection of their young from intraspecific predation by marauding males. However, if such marauding occurs, it must be rare, since we observed no instance in five years of observation. Also, females sometimes plug burrows before they give birth, and burrows in which they do not later raise young. My observations suggest an additional or alternative function for this behaviour: that of protection of the nest from potential competitors for nest sites. It seems reasonable to suppose that a well-concealed burrow already stocked with nest material might be a desirable resource for members of other sympatric species, such as Pocket Gophers (*Thomomys talpoides*), Deer Mice (*Peromyscus maniculatus*), or Meadow Voles, as well as for other ground squirrels. The habit of female Columbian Ground Squirrels of plugging their nest burrows could have evolved to prevent or deter other

individuals from discovering these ready-made homes and from taking them over between the time she stocks the nest and the time she gives birth.

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NATURALISTS' BOOKSHELF

THE GENESIS STRATEGY: CLIMATE AND GLOBAL SURVIVAL

by Stephen H. Schneider. 1977. Dell Publishing Co., New York. $6.95 paperback.

The Genesis Strategy is subtitled "Climate and Global Survival". Schneider is a climatologist who wants to inform the public that climatic events may bring about difficult ethical and political judgements in the near future. Schneider wants to instill in us a sense of urgency. The title The Genesis Strategy is taken from the Old Testament in which Joseph interprets one of the Pharoah's dreams to mean that seven years of famine would follow the seven years of feast that they were experiencing in Egypt at that time. In response to this, the Pharoah stored food. Through this title, we see that Schneider feels that food storage is the only prudent response to the prospect of climatically-induced famine.

There are three main problems: (1) we are risking social instability by indulging in short-term national solutions when we really need worldwide, large-scale considerations; (2) climatic change is greatly underplayed in political debates; and (3) nuclear power generation was unleashed on people before it was fully understood.

We fail to realize how fragile our existence is; the smallest variation in climate can result in large-scale famine. Our margin between production and demand is so narrow and our reserves so low that even a small reduction in production is a serious problem. In this situation it is also harder to build reserves. As our population steadily grows, greater reserves will be needed to support people for any length of time.

The fact is that there is short-term variability in climate that affects our food production. There is evidence for a 22-year drought cycle. The United States Department of Agriculture maintains that increased technology

has almost totally eliminated the effects of climate variability on production, but this ignores the 1974 production failures. These were severe and would have had a greater effect if food reserves had not been maintained. Schneider believes that we have been experiencing a misleading long period of invariable weather. Sadder still is the fact that as more food is required to support our ecosystem, and therefore making it less fit to produce. Our inadvertent climate modification, by increased emission of carbon dioxide into the atmosphere, is resulting in a worldwide temperature increase (The Greenhouse Effect). More dust and smoke in the atmosphere results in a screening of the incoming solar energy. A new theory is that not only carbon tetrachloride emissions, but also nitrates from fertilizer, are affecting the protecting ozone layer of the atmosphere.

Schneider refers to a "Science of Inhuman Technology" in which two views are put forward: (1) A Triage method of aid to underdeveloped countries in which countries that will never be able to become self-sufficient, as well as those that will probably make it without aid, are left along, ie. no aid is given. Aid is then given only to those countries that, with help, will attain self-sufficiency but without it will not survive. The help is, however, given only for a fixed amount of time after which the country is on it's own. (2) "Lifeboat Ethics", which is based on Darwin's concept of the "survival of the fittest". This idea incorporates the total ending of aid from rich to poor countries. In a lifeboat you can try to help too many and you sink when your boat is overloaded. On the other hand, as the number in the water around your boat increases, they might sink you anyway. Thus, Schneider notes that total ending of aid will result in violence, such as nuclear blackmail and terrorism of rich by poor countries, due to this inequality; people do not die willingly.

People tend to take two sides on this issue. Optimists, often referred to as "Pollyannas", believe that rapid and greater technological expansion will cure all problems. This attitude robs us of the sense of urgency. On the other hand, pessimists feel that without any intervention natural population controls will operate, ie. famine.

Schneider notes that the concept of climate control, manipulating the weather or stabilizing the climate, is a dangerous one, and that where a system is kicked it bulges elsewhere. Thus, if we alleviate our drought we may alter the monsoon rains necessary in India. Schneider feels that it is more important to control the climate controllers.

A greater distribution of fertilizer, to those countries that need it most, should be started. Fertilizer and production have a logarithmic relation, by which after a certain amount of fertilizer has been added more fertilizer no longer increases production significantly. The excess that we put on our crops would benefit the crops in poorer countries to a much greater degree.

The "Green Revolution" started in many underdeveloped countries, by using new more productive strains of crops, has resulted in a greater de-

pendence rather than a greater self-sufficiency. Compared to developed countries, these areas have very fragile ecosystems and, unfortunately, the "miracle strains" of crops are affected to a greater degree by variable conditions.

In order for poor farmers to adopt new technologies, the necessary materials must be available and affordable, they must receive the necessary instruction from someone they trust, and the product they grow must be saleable.

Schneider believes that many new political institutions are needed. A change in political attitude must be achieved; politicians must see beyond the next election. He suggests new and better agreements to stabilize food production and to prevent terrorist activity from escalating. He also recommends a nuclear inventory and control commission.

Therefore, The Genesis Strategy necessitates that we: (1) Save saveable lives; (2) Preserve humanity by not creating dangerous dependencies or environmental stresses; (3) Develop a high level of international cooperation; and (4) Develop a sense of urgency about the gravity of the situation.

Stephen Schneider presents his ideas and strategies well in this book, and especially stresses the need to decrease our dependence by building a greater degree of flexibility into our technology. He is one of the small number of authors who mixes politics and science in his writing, an interdependence which is often overlooked.

Unfortunately, this is not a particularly easy book to read. Often, too many ideas in wordy verbiage are clustered together in one sentence, often making important concepts difficult to extract.

- Laurel Wahler
7 Harrow Cres. S.W.,
Calgary, Alberta T2V 3B2

[Former Editor's Note: Thanks to Dr. M.T. Myres for submitting this review and for preliminary editing. This is another from his Biol. 421 class at the University of Calgary (see April 1981 issue AN) - M.K. McNicholl]

OVERHEARD. . .

"Wander slowly, walk in the shadow as well as in the light. See what you find. Stop often, feel the land beneath you and the life so near you."

Submitted by Murray A. Tozer, from "Slivers of Glass" by W.A. Pedersen

RECENT PUBLICATIONS ON THE NATURAL HISTORY OF ALBERTA

Compiled by
David M. Ealey and Martin K. McNicholl

[Note re: Edmonton Nat. - The cover of the most recent issue lists it as Vol. 9 No. 3. The contents page lists it as Vol. 10 No. 3. Both these are incorrect as the previous issue was Vol. 8 No. 2. Therefore, the current issue must be either Vol. 8 No. 3 or Vol. 9 No. 1. For this reason citations from this issue are given as: (8(3) or 9(1)?) - M.K.M.

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REFLECTIONS ON THE AMERICAN ORNITHOLOGISTS' UNION MEETING IN EDMONTON, 24-27 AUGUST 1981

by David M. Ealey

There are two major benefits gained by having an international conference on birds in one's home town. The first is the opportunity to hear and rub shoulders with renowned experts and academic researchers from throughout North America. The second, and often more insightful, is the opportunity to take stock of what is (and is not) going on with respect to bird study and appreciation in one's own province.

The intensity and depth of modern ornithological research was on display all week in over 150 poster and paper presentations. There were papers on birds found as far away as Australia, northern Patagonia and New Guinea, as well as a plenary session in honour of early research on avian migration, conducted in Alberta by William Rowan.

Many presentations belonged to the traditional realm of academic inquiry. Some of these were: Exploitative competition and coexistence in a swallow guild; The social significance of certain vocalizations of female Red-winged Blackbirds; Parental investment and reproductive strategies in the polymorphic White-throated Sparrow; The thermoregulatory collar plexus of veins in the Pigeon. Not all of the papers were dryly rigorous; several had their lighter moments, especially "Are Nutcrackers good students?" which reported on a study of caching behaviour and memory in these birds that showed a greater success rate of recovery by birds of cached objects than was accomplished by biology students under the same experimental design; and "Information centers and coloniality in birds - a Just-so story?" which thoroughly demolished a widely-accepted, but frequently unsupportable theory regarding the value of colonial living to birds. This last paper underscored the necessity of ornithological investigators to critically assess theories before embracing them as truisms.

More papers referred to the effects of man's intrustion upon natural communities and the plight of endangered species than I think ever before. This is both a good sign and a bad sign - academics are now realizing the possibilities of doing scientific research in modified habitats associated with

relentless development and they are also realizing there is a threat because such habitats are now more widespread.

Two very interesting special sessions preceded the main technical program; these were on "The state of art in rearing and releasing Peregrine Falcons" and on "Avian research stations in North America". The record of success at rearing and releasing peregrines exhibited by the captive breeding program at Wainwright, Alberta, conducted by the Canadian Wildlife Service, is as good or better than for any other North American effort. I think it shows Albertan ornithology in a very favourable light. However, Richard Fyfe, of the C.W.S., stressed that despite these successes, the peregrines are continuing to show poor reproductive success in the wild and they are still heavily contaminated with pesticide residues. The session on research stations I found particularly interesting because it showed the potential for bird research that can be achieved through a skillful blend of professional and amateur ornithologists at many places throughout North America (maybe some day at Beaverhill Lake???).

The contribution of Alberta ornithologists - professional and amateur - to the organization and running of the conference was impressive. It gave me an increased awareness of the birding community in my own province, that I am sure was shared by many others that attended the meeting. From the University of Alberta, David Boag, Chairman of the Committee on Local Arrangements, did a superlative job at organizing the logistics and local activities. Kay Ball of the Edmonton Bird Club very ably managed the field trip desk. Philip Stephney of the Alberta Provincial Museum organized a very successful (people did not want to leave!!!) reception at the Museum. Other people, like Geoff Holroyd, who was in charge of the well-attended field trip to Banff and Jasper, and Sydney Turner, who organized the information desk and field trips for spouses, were all part of the group of enthusiastic volunteers who helped make the meeting a success.

What did Alberta bird enthusiasts have to show for themselves at this meeting, over and above organizational help? Two publications were on sale about avian matters in the province: "Birds and Birders of Beaverhills Lake" by Robert Lister, and "Bird Banding in Alberta", Special Issue No. 2 of the Alberta Naturalist. Dr. P. Stepney had arranged for the printing of the new Alberta bird checklist to coincide with the meeting; it is a vast improvement over past checklists and, hopefully, will be given a thorough testing and review by Alberta ornithologists in the near future.

There was a bird art show accompanying the meeting featuring Alberta artists exclusively. Eleven artists submitted their works: Rick Beaver, Ludo Bogaert, Ralph Carson, Dick Dekker, David Fisher, Deirdre Griffiths, Charles Lacy, Sylvia Lenzner, Ken Lumbis, Ray Salt and Allan Smith. It was a solid showing by "our" artists; not perhaps their finest, but I only mention this opinion in the manner of a challenge. I know that we have several excellent artists in the province - they need more exposure and encouragement at naturalists' meetings, et cetera.

Some of the ornithologists from Alberta made presentations on bird studies conducted outside of Alberta: Geoff Holroyd, Martin McNicholl and Margaret

Skeel. However, aside from the peregrine work alluded to above, only one presentation was on Alberta birds. This was a poster paper on "Factors influencing waterfowl entry into polluted ponds" by John Gulley of Fort McMurray. Are there not other advanced bird studies that need to be conducted in Alberta? I think the answer to that is obvious: of course there are. In comparison with many other parts of North America, bird study is still quite "young" in Alberta. This means that many questions remain to be investigated. Perhaps by the time of the next significant ornithological or natural history meeting we host in the province, we will have matured in the range and intensity of our bird studies.

FAN NEWS

FAN ANNUAL GENERAL MEETING

The 1982 Annual General Meeting of FAN will again be held at Camp Caroline. The dates are Friday, January 29 through Sunday, February 1. The accommodation rates are: Individual, $47.00; Husband and Wife, $89.00; Youths 18-21, $42.00; 13-17, $37.00; 8-12, $32.00; 3-7, $25.00; 0-2, free. Price includes meals. Bring a swimsuit for indoor pool. Reservations must be received by January 10, 1982. Send $25.00 or the full amount to the FAN Treasurer, Fred Coffey, P.O. Box 1472, Edmonton, Alberta T5J 2N5. Accommodation is limited so reserve early.

FAN POLICY AMENDMENTS

At the FAN 34th Regular Board of Directors Meeting, May 16, 1981, the following policies were amended. (Changes are indicated by [].)

Policy: Environmental-Oriented Provincial and National Organizations
Federation of Alberta Naturalists' Role

1. Be supportive, cooperative and aware of the goals and objectives of other organizations. Get to know the executive members as people who have similar aims and interests as we have in our societies; share and appreciate, yet reserve the right to oppose policies which we find to be in conflict with FAN's philosophy and policies. Maintain an exchange of publications or other means of communication.
2. Appoint representatives to suitable Provincial or National advisory committees to help maintain liaison and to ensure that the interests of FAN and Alberta Naturalists generally are expressed to these groups [and FAN members in turn receive information from their representatives].
3. Canadian Nature Federation - FAN is a member society and sends representation to its annual meetings and maintains a liaison through its appointed representative. Encourage communication, membership and attendance of CNF functions. Be aware of services available from CNF, consult and advise where and when appropriate.

Policy: Relationship of Federation of Alberta Naturalists with its Corporate Clubs/Societies

The Federation of Alberta Naturalists (FAN) exists because of its member societies. Communication and a working relationship is vital for the benefit of each society and the provincial organization. FAN's role:

a) Provide a focal point for naturalist activities in the province.

b) Co-ordinate efforts of member clubs where it is desired by clubs.

c) Provide a forum for resolution of differences of policy between member clubs.

d) Provide support, advice and input on local issues at the provincial level when requested by local clubs. The Federation should take the initiative in areas where no member club exists.

e) Provide practical assistance to member clubs on special projects if they so desire.

f) FAN through its directors who are representatives from member clubs should keep the membership at large informed of FAN's activities in order to create and maintain a liaison of informed membership.

[g) FAN represent the Corporate clubs interest at the National level when warranted through CNF representative.]

Corporate (member) Clubs' role:

a) Emphasis should be placed on their own area - activities relating to education, environmental action, the pursuit of knowledge, recommendations and resolutions. Keep FAN informed of their activities and concerns through their representatives.

b) Be prepared to seek advice from other clubs and FAN on issues where others have had experience on comparable issues.

c) Provide practical assistance and promotion wherever possible for activities at provincial [and national levels - FAN & CNF projects].

d) Appoint directors to serve on the Board of Directors of the Federation who are willing to play a role in the work of the Federation and nominate others to serve on FAN standing committees.

e) Encourage membership as well as attendance at the various FAN functions. Promote use of the Alberta Naturalist by members, schools, public libraries and other community groups. Encourage all to be readers and contributors to the AN.

FAN BOARD OF DIRECTORS MEETING, MAY 16-18, 1981

The Edmonton Natural History Society hosted the FAN Board of Directors Meeting May 16-18, 1981. The Saturday evening program was presented by Deidre Griffiths, Park Naturalist and author of the Elk Island Park book. Sunday evening program speakers were Diane Griffin, Dick Dekker and Terry Thormin; topics were ecological reserves, Beaverhill Lake and the Wagner Bog. Areas visited on field trips were Elk Island National Park, Beaverhill Lake, the Sandhills and Wagner Bog.

The Edmonton Natural History Society is to be congratulated on a well-organized schedule of field trips and evening programs for this meeting.

ALBERTA ORNITHOLOGICAL RECORDS COMMITTEE REPORT

The function of the AORC, as originally envisioned, were to gather and record information on the occurrence and distribution of birds in Alberta and to apply standards of documentation for these records. The categories established are: I. Substantiated Record, II. Documented Observation, III. Documented Nesting Record, and IV. Unsubstantiated Observation.

Additional functions of the Committee were to publish, in the Alberta Naturalist, a record of the submissions to the Committee and to prepare lists of birds for which distributional data in Alberta was believed to be incomplete or lacking.

This was a tall order. In its broadest sense, the Committee's responsibilities involved soliciting and maintaining a full range of bird records for the province. The Committee quickly settled on aspects of its functions which were possible to perform well within the voluntary time resources of a half-dozen well-qualified amateurs and professionals. Thereby, the principal function became the documentation and recording of rare and unusual bird occurrences and the publishing of the existence of these records in the Alberta Naturalist.

During its operational history, the Committee has handled the recording and documentation of a few hundred observations of birds in Alberta. Most of these records are on file at the Provincial Museum of Alberta in Edmonton.

The role of the Committee is now under review by its members. The members of the Committee believe that Alberta Ornithological Records should be recorded permanently in some manner. These records should include the occurrence of Rare birds, Unusual records of more Common birds, Nesting records and Migration data. Additional type of data could be recorded. The Committee is concerned with the following questions: (1) Under what auspices should the record-keeping be organized?; (2) What records should be kept?; (3) Assuming that the AORC is responsible for record-keeping, how should it be organized?; and (4) Should a computer-based file be developed? If so, how should it be organized, maintained and funded?

Overall, what type of organized record-keeping would accept records from both casual amateurs and full-time professionals, have the records available to those who wish to make use of them, be financially feasible and do it in a manner that is acceptable to Alberta's naturalists?

- Submitted to May 16 FAN Board of Dir.
Meeting by Ian Halladay, Chairman

In response to this report the Board of Directors moved "That the AORC be encouraged to take steps to develop a program toward a data collection on a computer based grid system for ornithological observations".

Ian would like a phonecall or a letter if any FAN members have any suggestions as to the availability of computer space, etc., to assist with this project. Write or phone Ian Halladay, 2103 Crocus Road N.W., Calgary, Alberta T2L 0Z7 (282-1420).

HERITAGE TRUST FUND SUGGESTION FROM FAN

"April 24, 1981

Mr. Tom Sindlinger, MLA for Calgary Buffalo Const.
123 Legislative Building
Edmonton, Alberta
T5K 2B6

Subject: Natural Areas/Landscapes & Heritage Trust Fund

Dear Mr. Sindlinger:

The Federation of Alberta Naturalists has become aware of your desire to solicit ideas and suggestions from the public with respect to the management and use of the Alberta Heritage Trust Fund. We would like to present one concept about which we feel very strongly, for your consideration.

The Federation has consistently argued that while Alberta is blessed with a great diversity of natural areas, very little of that diversity has been given adequate protection to ensure its integrity for the enjoyment and benefit of future generations. We believe that the expenditure of some money from the Trust Fund towards the purchase of privately owned, ecologically important land in every region of the province would reflect that concern for the future which establishment of the Fund represented.

It might be useful to observe the National Second Century Fund of British Columbia as a potential model in terms of the acquisition and management of such land.

F.A.N. believes that the great and ultimate wealth of Alberta is inherent in its land and to use the proceeds from the exploitation of natural resources today, to perpetuate the diversity of our landscapes and natural areas for tomorrow seems to us, eminently appropriate. We respectfully submit this idea for your consideration.

Yours very truly,
Mary S. Lore, President"

OVERHEARD. . .

"There is a deep sense of sadness in the definition of the word extinct: 'not existing now, that has ended or died out, no longer in use, obsolete, extinguished, quenched, gone, vanished. See dead.' But with exterminate, the mood turns dark and insane: 'to get rid of by destroying, destroy totally, extirpate, eradicate, abolish, annihilate, eliminate."

Submitted by Murray A. Tozer, from "The Endangered Ones" by J.A. Cox

THE PRESIDENT'S PAGE

by Mary S. Lore
1621 - 4 St. N.W.
Calgary, Alberta T2M 2Z1

I would like to pay tribute to our retiring editor, Martin McNicholl with this issue and welcome Virginia Lang Young back as editor for the next year. Words cannot say adequately the deep appreciation we owe to Martin for the quality publication that he manages to produce.

I am looking forward to the Historical Issue which will be available and you may have received it by the time we have our September meeting.

The Kettenbachs and the Kenworthys at Rockyford are to be commended for the stand they took on behalf of the wildlife corridor between their properties in order to protect the wildlife and quality life for people. The ERCB awarded the drilling company the right to drill one of the two wells but rejected the second one. I think this is a first and I feel progress is being made in the area that private enterprise must assume more responsibility toward protection of the environment in their endeavours.

Another mark of progress has been accomplished with the Department of Education having appointed a Director of Environmental Education, a person who has been with Outdoor Education with the Calgary Board of Education.

FAN's library has been donated to the Edmonton Nature Centre for the purpose of research and study by the young people who visit the centre. We are delighted that it will find an educational purpose, and are grateful to the Proudfoots, who stored ten boxes for so many years for us.

All members will receive the Historical Issue (first ten years of FAN and its corporate clubs) provided they are paid up members at the time the publication is ready for distribution. Extra copies which you may wish to give as gifts will be available for $6.00 each, plus 75¢ postage. The Bird Banding issue, being published to be available for the AOU Conference held in Edmonton during August, will not be distributed to the membership at large, but copies are available at the cost of $3.00 each. Check with your club for copies or write to the FAN P.O. Box if you want copies. Send your cheque along and will arrange for someone to distribute these. (Ed. note: See advertisement page 158 of this issue.)

Do remember that 1982 has something special for you as a naturalist. The 1982 Canadian Nature Federation conference will be hosted by the Calgary Field Naturalists' Society at the University of Calgary July 2-6, 1982. If you are a CNF member, the information will come with the December issue of Nature Canada. If not, contact your club president for information.

EDITOR'S PAGE

I think I can speak on behalf of all FAN members in thanking Martin McNicholl and Dave Ealey for a job well-done. The AN, under their guidance, has continued its 8-10 year steady improvement in quality. With Dave's invaluable assistance and your continued support, I hope to maintain this upgrading process. I invite and welcome reader input - material, suggestions, artwork, letters to the editor, "Overheards", and, especially, contributions to "Notes and News" and "Conservation News". It's impossible for Dave and I to keep on top of every development of interest or concern to our members, so your help is most welcome.

In an effort to reduce delays in mailing, I ask contributors to forward your material directly to me, Virginia Lang Young, R.R. #1, Busby, Alta. TOG OHO. I look forward to hearing from you.

CLUB NEWS

[Editor's Note: I would ask all corporate member club newsletter editors to please put me on their mailing lists so, through this feature, all FAN members may be informed of what each club is doing. Thank you.]

BUFFALO LAKE NATURALISTS

Summer and fall activites of the Buffalo Lake Naturalists include(d): participation in the FAN July 18-19 activities; a canoe trip/camp-out on the Red Deer River on Labour Day week-end; a "Bring A Friend Night" with members showing slides Sept. 17; participation in FAN's Lethbridge meeting Sept. 19-21; and the regular meeting will be held October 15 with Mr. Rod Heintzman speaking on Ft. Chipewyan.

The Buffalo Lake Naturalists, with Virginia R. Maitland as Editor, are to be congratulated on producing a information-packed and very interesting newletter.

OVERHEARD. . .

"In some enlightened lands, measures have already been taken to set aside reserves where indigenous wildlife can live to some extent as nature intended them to. Great efforts must be made to persuade other nations to do the same. If we fail in this, we face a bleak and lonely future."

Submitted by Murray A. Tozer, from "The Endangered Ones" by J.A. Cox

Edmonton Bird Club

SPECIAL ISSUE NO. 2

BIRD BANDING IN ALBERTA

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Copies are available for sale @ $3.00 plus 50¢ for postage. Members can purchase them through their elected directors of corporate member clubs or by writing to the Federation of Alberta Naturalists, Box 1472, Edmonton, T5J 2N5. Attn. D. Ealey.

Cosponsored by the Federation of Alberta Naturalists and the Edmonton Bird Club, for the American Ornithologists Union Conference held in Edmonton in August, 1981.

NOTES AND NEWS

LORAN L. GOULDEN MEMORIAL AWARD NOMINATIONS

Nominations for the Loran L. Goulden Memorial Award for outstanding contributions to natural history in Alberta are sought at all times, but to be considered for the 7th Annual Award should reach the Chairman of the selection committee by 1 December 1981. The 7th award will be presented at the Annual General Meeting of the Edmonton Natural History Club in January 1982. Nominations may be for contributions in any field of natural history within the province of Alberta. All previous nominations of persons who have not yet received the award will be considered, but nominators of such persons are encouraged to update these nominations. Previous Awardees have been: Dick Dekker, W. Ray Salt, Charles E. Bird, Robert Lister, Joy Finlay and John M. Powell. Nominations should be sent in writing to the Chairman or given to another member of the committee (Bruce Bembridge, Edmonton; Dorothy Broadbent, Red Deer; Gwen McCauley, Ottawa). Martin K. McNicholl, Chairman Loran L. Goulden Memorial Award Selection Committee, 128 Silvergrove Hill N.W., Calgary, Alberta T3B 4Z5 (288-3642).

FIFTH INTERNATIONAL WILDLIFE FILM FESTIVAL

The 5th International Wildlife Film Festival will be held at the University of Montana April 22-26, 1982. Planning is already underway; 1981 calendar-year wildlife films will be judged; a "classics" section of films will be judged; workshops and panels will discuss and study wildlife film problems; trips to view or film wildlife will be featured; and a wildlife art show and photo contest will be arranged. For further details contact Wildlife Film Festival, Wildlife Biology Program, University of Montana, Missoula, Montana 59812.

ALBERTA DUCKS DIE OF BOTULISM

Thousands of ducks and other waterfowl in Alberta have fallen prey to botulism on Beaverhill Lake, 60 km east of Edmonton and Buffalo Lake, 40 km northeast of Red Deer. These lakes are known for this problem. Last year, 3,000 waterfowl died of botulism on Beaverhill Lake and 2,000 on Buffalo Lake. The largest single outbreak however, was on Pakowski Lake south of Medicine Hat, where 9,000 waterfowl were victims.

Clean-up operations involve the destruction of maggot-infested birds. Healthy ducks feeding on the maggots run the risk of picking up a fatal dose of the deadly botulism toxin. The toxin is produced by bacteria in the lake water oxygen during hot, dry weather. This type of botulism affects only birds. - "Farm Light & Power", September 1981.

SUZIES AND SUPERGUNS

The Canadian Wildlife Service and Provincial Wildlife agencies entered into a period of stable hunting regulations in 1979. Bag limits and season lengths were fixed for a five-year period, during which researchers will assess the relative impacts that hunting and non-hunting mortality have on the status of key migratory game bird populations. The results will be extremely valuable for setting future seasons: the goal of which will be to optimize Canadian use of our valuable migratory bird resource.

One project initiated this spring involves compatimentalizing annual mortality. That is to say, subdivide annual mortality into four seasonal units. The objective of this exercise is to enable waterfowl managers to compare levels of mortality associated with nesting to levels accrued during hunting season and to levels of mortality experienced during winter. The methods utilized for subdividing annual mortality includes banding predetermined numbers of ducks. Last spring CWS and USFWS biologists endeavoured to capture 250 female mallards ("Suzies") in Minnesota, Alberta, Saskatchewan and in Manitoba. The adult females bear standard leg bands and $10 reward bands, which will help increase probability of a recovered bird being reported. Mortality rates will be determined later using reported bands and existing computer models.

How do researchers catch "Suzies" to band them? Superguns! A new crossbow device that launches a 10-foot triangular net distances up to 30 yards. Aldo Leopold had no idea of what he was starting!

WOLF PREDATION IN BISON HERDS

Research on wolf predation in bison herds of Wood Buffalo National Park began in 1978 and will terminate this fall. Winter predation rates are studied by radio-tracking wolf packs. In summer, wolf predation on calves were observed in the Lake One prairie. The prairie is about 5 km long, 2.5 km wide. Bison wintering in the Peace-Athabasca delta use the area as a calving ground. Observations of wolf/bison interactions were particularly productive in the summer of 1980. Most observations were made from a small tower 3 m above ground supported on a metal stand. The 3 metre square cabin on the tower served as home base and is centrally located on high ground. Daily observations of bison and wolves were recorded. Eight wolves used the prairie as a den site and raised six pups. Ninety-one wolf/bison encounters were observed. Ten of these resulted in physical contact. Three wolf-killed bison calves were found. In two cases, segments of the attack were observed, and in all three cases wolves were seen feeding on the fresh carcasses.

Bison have developed effective antipredator strategies. Cows in particular were alert and were aided in their defense strategies by subadults. These studies only begin to touch upon the subject of wolf/bison interrelationships, but the project so far has been very productive.

CONSERVATION NEWS

OFFICE OF ENVIRONMENTAL COORDINATOR: SPRING, 1981, SUMMARY

The Alberta Wilderness Association received a $12,000 grant from the Recreation, Parks and Wildlife Foundation to carry out a second year of the Alberta Wild River Protection study. AWA also received a matching grant from the Recreation Division for one student to work on this project. The funds will be used for study and to publish two books on the subject.

A previous Calgary region coalition of environmental/conservation groups to deal with national park issues and concerns has been reborn as the Environmental Monitoring Committee of Western Canada (EMCWC). For information on this committee and its activities contact the FAN representative, Maryhelen Posey, 5127 Brisbois Dr. NW, Calgary.

Although only five provincial groups have been appointed as official "consultants" to the planning teams dealing with resource planning areas throughout Alberta, the AWA has requested that Energy and Natural Resources invite FAN and/or NPPAC Edmonton Chapter to appoint "consultants" for the Frost Hills Current Plan (Lesser Slave Lake area) in lieu of the AWA appointing a "consultant".

The Alberta Forest Service, Bow-Crow Office (in Calgary) will be doing a management study for the Red Deer River corridor within the forestry. Please contact Mr. Art Peter, Bow-Crow Superintendent, if you are interested in providing some input.

Parks Canada is working on a management plan for Wood Buffalo National Park and will likely be holding public meetings/hearings on the alternate plans late this fall.

The Alberta Fish and Game Association has established the Alberta Habitat Development Society for the purpose of securing funds for habitat development/improvement and the "establishment in perpetuity of a large number of improved natural areas with a high potential for public use, at no cost to governments, which will provide an obvious asset to increasing beauty of Alberta".

COMMITTEE FOR THE PRESERVATION OF THE THREE RIVERS

Formed five years ago in response to Alberta Environment's proposed dam on the Oldman River, this group has pushed for public involvement and proper water management planning for the Oldman River basin. Any person interested in the future of the Oldman River or in Alberta Environment's mismanagement of our water resources should contact: Mike Cooper, Box 88, Cowley, Alberta TOK OPO (628-2300).

FOOTHILLS PROTECTIVE ASSOCIATION

The Foothills Protective Association represents the interests of 500 landowners in southwestern Alberta, from Nanton to Waterton Lakes. It has been involved in proposing alternative routes for the 500 KW transmission line, the Oldman dam fiasco, and various surface rights issues. They ask for active support of

Albertans as they attempt to deal with development pressures in the south. Please contact: Dick Hardy, President, Pincher Creek, Alberta.

PLAINS AQUATIC RESEARCH CONFERENCE REPORT

The 2nd Biennial Plains Aquatic Research Conference was held at the University of Calgary August 24-26, 1981. The Plains Aquatic Research Group was established by the Canadian Plains Research Centre in Regina in response to a perceived need by water researchers in the plains of Canada and the United States.

The conference was designed to permit individual researchers to report on their most recent findings in the fields of Planning and Engineering, Pollution Monitoring and Research, and Limnology and Aquatic Ecology of Lakes and Rivers. In addition, a state-of-the-art symposium on the final afternoon discussed "Energy Development on the Plains: Water Resource Conflicts". The latter discussion will appear as proceedings of the conference and will be published by the Canadian Plains Research Centre. The subject for the symposium was arrived at because of recent interest in plains energy development and the potential water use conflicts that may results. Five different multi-disciplinary points of view were expressed by the speakers including water allocation for energy development, water supply constraints in heavy oil development, groundwater implications of plains resource development, water demand forecasting for the Canadian plains and the social and political implications of water resource planning.

In general, comments and discussions at the conference were concerned with potential for insufficient water supplies in southern Alberta to meet future industrial development and population needs for water. Alberta is in the unfortunate position where 80 per cent of its available surface water is in the northern half of the province and 80 per cent of its present population is in the southern half. If future developments follow the present trend, the inadequate southern water resources must be much more intelligently managed to ensure adequate water supplies - in both quality and quantity - to meet the expected demands. No real answers were forthcoming, but the attendees will be watching closely the manner in which our responsible agencies will address these potentially very difficult problems if the future brings about developments and population growths as it is presently envisaged for Alberta.

- Submitted by Bruce L. Baker,
Conference Chairman

JUNIOR NATURALISTS' SECTION

THE GRIZZLY BEAR

by Lori Ring
Grade 5, Canmore, Alberta

The grizzly is a subspecies of the circumpolar brown bear. In a bear family it includes seven basic types that are found in the northern halves of the western and eastern hemisphere. They are also found in South America. The North American Brown Bear including the grizzly is one of the types found in North America. The other ones are the Black Bear and the Polar Bear. The grizzly was the first thought to be unique to North America.

There were a lot of grizzlys south into Mexico and California. They also range across the western half of North America. The grizzly and the Polar Bear are the largest bears. The grizzly's features are a dished face and long claws. It can be almost white, ivory, yellow or black. Grizzlys usually have light fur on their head and shoulders, a dark body and sometimes darker legs and feet. The shape of their body and long fur make them look much heavier than they are. The average weight of a male grizzly is 600-800 pounds and a female weighs even less than that.

Grizzlys are usually born in a den in the winter during January or February. When they are born they weigh about 14 ounces (400 gm) and are about 10 inches (223 ml) long. A common litter for a bear is two cubs but they can have one to four. When the cubs leave the den with the mother they weigh about 20 pounds. The cubs usually stay with their mother until their second year in June because their mothers mate then, but the cubs don't mate until they are three or four years old.

To tell a bear's age you look at number of layer of cement holding teeth together. One of the layers is one year, and it has been known that a wild bear lives to be about 25 years old. Grizzlys are not as active after breeding season, then it grows fatter on summer foods so it can survive through the winter. A female grizzly usually hibernates first. She goes in about October or November but it depends on what the weather is like and what the bears condition is. Male grizzlys usually stay outside the den until about the middle or end of December and they often come out as early as February or March. The female grizzlys with offspring usually stay in the den until late April or early May.

Most people thought grizzlys were true hibernators but they aren't. To be a true hibernator your body temperature has to drop a big amount. Their respiration rate also has to drop a big amount, but a grizzly's body temperature only drops a few degrees and his respiration rate only drops a little below normal. True hibernators also fall into a real deep sleep and grizzlys don't. They can be active all winter.

A bear eats meat, vegetation and plants. During June and July grizzlies eat plans with leaves. In fall they only eat berries. Grizzlies sometimes eat moose, elk, squirrel, deer, caribou and cattle. They have a very good sense of smell and can locate dead animals from a long distance away.

Wild grizzlies don't usually get parasites or diseases. However if they get them the parasites usually die off during the bear's hibernation. But bears in zoos can have parasites.

The grizzly produces it's young every other year. It has no natural enemies. The biggest threat to it's territory is man. We threaten the grizzly by taking it's land, not by hunting it.

I have learned that a grizzly is a magnificent animal and that it is very interesting.

MY DAY WITH NATURE

by Libby Yuill, Grade 6

On weekends I go up to my uncle's house in Redcliff. The geography near his house is on flat land with hills around him. There are many trees and flowers on his property. On the outskirts of Medicine Hat there is a beautiful farm which I love to look at. This farm has a large field with the river flowing by.

The animals around his house are rabbits, deer and hawks. The rabbits eat his lettuce and grass. My uncle doesn't like when the deer eat the grass because they chop it off so short. Hawks don't usually come around but when they do they try for the rabbits. Sometimes I see coyotes running in the next field.

There is plenty of plantlife; trees, flowers and bushes.

I have gone to my uncle's place many times but every time there is always something new and exciting for me to see. Once in awhile I see young deer walking with it's mother, but always frisking about. Many times I just go up there to smell the fresh air and take walks alone, and I really see what nature is all about.

Have you every caught a wild animal? I have, it was only a small rabbit but it was cute and cuddly like many things. I tried to feed him some lettuce but it was too afraid so I let him go that night. I have also seen a tiny field mouse by a tree while I pruned the branches, but it then disappeared behind a bush.

The one thing I liked best with my day with nature is that it was interesting and fun to watch nature.

I would gladly live in the country rather than the city!

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DEADLINES for submission of material for regular issues are: January 15, April 15, July 15 and October 15. All maps and charts should be submitted on 8-1/2 x 11" (or 8-1/2 x 7") white bond. Please indicate in light pencil any data which are to be typed on charts, maps, etc. Black and white photographs, slides or drawings are welcomed. Include your complete mailing address.

DEADLINES for FAN project reports are: Alberta Flowering Dates, October 31, 1981, Dr. Charles D. Bird, Box 165, Mirror, Alberta T0B 3C0; Alberta Christmas Bird Counts, January 15, 1982, Virginia Lang Young, R.R. #1, Busby, Alberta T0G 0H0; Species Count Day (May), Birds and Mammals, July 15, 1981, Allen Wiseley, 202-635-56 Ave. SW, Calgary, Alberta T2V 0G9; Species Count Day (May), Plants, July 15, 1981, J. Derek Johnson, Northern Forest Research Centre, 5320-122 St., Edmonton, Alberta T6H 3S5; Prairie Nest Records Scheme, October 1, 1981, Herbert W.R. Copland, Manitoba Museum of Man & Nature, 190 Rupert Ave., Winnipeg, Man. R3B 0N2.

FAN MEMBERSHIP FEES ARE: Regular, $6 per year; Supporting, $10 or more per year, with the excess over $6 being deductible from taxable income. All members now contribute $1 of the $6 membership to the "Bucks for Wildlife" program.

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